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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,635

02/16/2005

Hiromitsu Takeda

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23850

7590

02/14/2007

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP

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WASHINGTON, DC 20006

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT

PAPER NUMBER

1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/524,635

Applicant(s)

TAKEDA, HIROMITSU

Examiner

Ramsey Zacharia

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/16/2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 09-205898.

JP 09-205898 is directed to a sheet for farming which transmits ultraviolet rays and cuts off infrared rays to maintain a suitable temperature for farming (abstract). The sheet is formed of a resin, such as polyethylene terephthalate, containing tin oxide superfine particles (abstract). The tin oxide of the inorganic particles may be doped with antimony (paragraph 0012). The sheet may have a thickness of 50-300  $\mu\text{m}$  (paragraph 0017) and the concentration of particles in the resin is at least 3 wt% (paragraph 0019). In the embodiment of Example 1, 10 wt% of tin oxide particles are contained in a sheet having a thickness of 50  $\mu\text{m}$  (paragraph 0030). A blend

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of 90 wt% polyethylene terephthalate ( $\rho = 1.375$ ) and 10 wt% tin oxide ( $\rho = 6.95$ ) has a density of about 1.9 g/cc (i.e.  $0.1 \times 6.95 + 0.9 \times 1.375$ ). The volume of 1 m<sup>2</sup> of this sheet is 50 cc (i.e. 100 cm x 100 cm x 0.005 cm). Therefore, 1 m<sup>2</sup> of sheet has a total mass of 95 g (50 cc x 1.9 g/cc), and a mass of particles of 9.5 g (95 g x 10 wt%). That is, the sheet of Example 1 has a tin oxide concentration of 9.5 g/m<sup>2</sup>.

Regarding claims 2 and 3, the limitations of these claims are taken to be met because the amount of radiation transmitted through a material is a function of the composition of the material. Since JP 09-205898 teach a sheet formed of the same resin (polyethylene terephthalate), containing the same heat shielding particles (tin oxide that may be doped with antimony), in the same concentrations (e.g. about 9.5 g/m<sup>2</sup>), the absorption characteristics of the resulting sheet should fall within the ranges recited in instant claims 2 and 3.

4. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Fisher (US 2002/0086926).

Fisher teaches an infrared absorbing resin comprising lanthanum hexaboride particles alone or in combination with doped tin oxide (paragraph 0015). The doped tin oxide may be doped with antimony (paragraph 0016). Figures 2 and 3 illustrate embodiments that exhibit visible light and solar radiation transmissions within the ranges recited in instant claim 2.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fisher (US 2002/0086926).

Fisher teaches all the limitations of claim 4, as outlined above, except for the concentration of particles in  $\text{g/m}^2$ . However, Fisher teach a concentration of lanthanum hexaboride of about 0.001-0.1 wt% and a concentration of tin oxide of about 0.05-2.0 wt% (paragraphs 0016-0017). At a film thickness of about 0.13-1.3 mm, this should result in a sheet having a concentration particles within the ranges recited in instant claim 4.

Moreover, Fisher demonstrate that the concentrations of lanthanum hexaboride and tin oxide are variables that affect the degree of infrared absorbance of the resulting sheet (e.g. see Figure 2 and the Examples - particularly Example 6). That is, the concentration of particles is a results effective variable. Therefore, in the event that the concentration of particles is not inherently within the ranges recited in instant claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the concentration of particles, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).


### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**